



***15" and 17" CRT Desktop  
Touch Monitor User Guide***

3M Touch Systems

Read and understand all safety information  
contained in this document before using this product.

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Problem	Possible Causes and Solutions
	<p><b>Is the monitor in Power Management mode?</b> Touch the screen, press any key on the keyboard, or move the mouse to restore operation.</p> <p><b>Are the brightness and contrast settings too low?</b> Use the monitor controls to adjust these values.</p>

## Troubleshooting the Touch Screen

If you are experiencing problems with the touch screen, check the following list of common installation errors.

**Table 3. Common Touch Screen Installation Issues**

Common Installation Issues	Possible Solutions
Touch screen does not respond to touch	<ul style="list-style-type: none"> <li>Review the installation procedures. Are all cables connected properly?</li> <li>After you installed TouchWare, did you restart your PC to activate the touch screen driver?</li> <li>Are the communication settings correct? Is the touch screen trying to use the COM port or IRQ of another device (for example, a mouse)? If so, a hardware device conflict will result and the touch screen will not work.</li> </ul>
Touch screen is not accurate	Calibrate the touch screen for the current video resolution and operating system.
Cursor does not follow finger movement or does not reach the edges of the screen	Calibrate the touch screen for the current video resolution and operating system.
Cursor is not located directly underneath your finger	<ul style="list-style-type: none"> <li>Open the touch screen control panel and make sure all cursor offsets (vertical, edge/horizontal) are turned off.</li> <li>Calibrate the touch screen for the current video resolution and operating system.</li> </ul>



**CAUTION**

**To avoid the potentially hazardous situations associated with the use of alcohol which may result in minor or moderate injury or property damage:**

- Follow all instructions and recommendations in the manufacturer's Material Safety Data Sheet and product label.
- It is important to avoid using any caustic chemicals on the touch screen. Do not use any vinegar-based solutions.
- Apply the cleaner with a soft, lint-free cloth. Avoid using gritty cloths.
- Always dampen the cloth and then clean the screen. Be sure to spray the cleaning liquid onto the cloth, not the screen, so that drips do not seep inside the display or stain the bezel.
- Always handle the touch screen with care. Do not pull on or stress cables.

## Monitor Installation Problems

Problem	Possible Causes and Solutions
No image displayed (blank screen)	<p><b>Is the monitor receiving power?</b></p> <ul style="list-style-type: none"> <li>• Check that the computer's power cable is connected properly and securely in a grounded electrical outlet.</li> <li>• Check that the monitor power cord is connected properly and securely to an electrical outlet. Check that the LED is lit on the monitor.</li> <li>• Try using another power cable.</li> <li>• Try using another electrical outlet.</li> </ul> <p><b>Is the monitor receiving a valid video signal from the PC?</b></p> <ul style="list-style-type: none"> <li>• Check that the computer is powered on.</li> <li>• Check that the video cable is connected properly and securely to the computer.</li> <li>• Check that no pins are bent in the video cable connector.</li> <li>• Check that the video card is firmly seated in the card slot in your computer.</li> <li>• Check that the video input from the video card falls within the operating range of the display. Refer to Table 2 for details.</li> </ul>



**WARNING**

**To avoid the risk of fire which could result in serious injury or death:**

- Do not remove the cover or back of the monitor.

**To avoid the risk of electric shock which could result in serious injury or death:**

- Do not use a power cord that is frayed or otherwise damaged.

**CAUTION**

**To avoid the risk of electric shock which may result in minor or moderate injury:**

- Do not service the monitor.
- There are no user serviceable parts inside.
- Refer all servicing to qualified service personnel.
- The anode cap output is at high voltage.
- Do not use non-conforming replacement parts.
- Do not place wet or damp objects on the monitor.
- Do not expose the monitor to rain or other sources of water, steam, or moisture.
- Do not place foreign objects on the monitor or its cables.
- Do not remove the cover or back of the monitor.

**To avoid the risk of glass breakage which may result in minor or moderate injury:**

- Handle the monitor with care to avoid breaking the touch screen sensor. The display contains glass parts. Dropping the display may cause the glass parts to break.
- Do not place foreign objects on the monitor.

**To avoid the potentially hazardous situations associated with the use of alcohol which may result in minor or moderate injury or property damage:**

- Follow all instructions and recommendations in the manufacturer's Material Safety Data Sheet and product label.

**To avoid possible environmental contamination which may result in minor or moderate injury:**

- Dispose of the monitor according to applicable governmental regulations.

## Explanation of Symbols



Attention: Read accompanying documentation

### Important Notes:

- Plug power cord into appropriate power source.
- Plug power cord into a grounded receptacle.
- When unplugging power supply cord, pull on plug not cord.
- Do not connect or disconnect this product during an electrical storm.
- Install the display in a well-ventilated area. Always maintain adequate ventilation to protect the display from overheating and to ensure reliable and continued operation.
- Do not expose this display to direct sunlight or heat. Passive heat may cause damage to the case and other parts.
- Do not install this display in areas where extreme vibrations may be generated. For example, nearby manufacturing equipment may produce strong vibrations. The vibrations may cause the display to exhibit picture discoloration or poor video quality.
- Ensure any metal enclosure does not contact the touch screen.
- Product weight varies from 25 to 50 pounds depending on the size of your monitor, use caution when lifting.
- To avoid ergonomic concerns:
  - Do not install the monitor in a manner or location with awkward accessibility.
  - Extended use may result in muscle, tendon, or fixed posture strains. It is recommended you take periodic breaks from continuous use.

## Service and Repair Indicators

Do not attempt to service this unit yourself. Removing the display cover may expose you to dangerous voltage or other risks and will void the warranty.



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**CAUTION**

**To avoid the risk of electric shock which may result in minor or moderate injury:**

- Do not service the monitor.
- There are no user serviceable parts inside.
- Refer all servicing to qualified service personnel.
- Do not remove the cover or back of the monitor.

Unplug the display from the power outlet and refer servicing to qualified service personnel in the event that:

- Liquid is spilled into the product or the product is exposed to rain or water.
- The product does not operate properly when the operating instructions are followed.
- The product has been dropped or the case has been damaged.
- The product exhibits a distinct change in performance, indicating a need for service.
- The power cable or plug is damaged or frayed.

### **3M Touch Systems Support Services**

3M Touch Systems provides extensive support services through our website and technical support organization. Visit the 3M Touch Systems website at <http://www.3mtouch.com/>, where you can download touch screen software and drivers, obtain regularly updated technical documentation on 3M Touch Systems products, and learn more about our company.

Whenever you contact Technical Support, please provide the following information:

- Part number and serial number from your monitor
- Current driver version
- Operating system used
- Information on additional peripherals

Technical Support is available Monday through Friday 8 a.m. to 8 p.m. US Eastern Standard Time – 9 a.m. to 5 p.m. throughout Europe. Limited call back service Saturdays and Sundays.

You can contact 3M Touch Systems Technical Support (US only -- Eastern Standard Time) by sending email, calling the hot line or sending a fax.

- Technical Support Hot Line: 978-659-9200
- Technical Support Fax: 978-659-9400
- Toll Free: 1-866-407-6666
- Email: US-TS-techsupport@mmm.com

### **3M Touch Systems Worldwide Offices**

All offices can be reached through the website:

<http://www.3mtouch.com/>.

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- Hong Kong/China (852) 2333-6138
- Italy +39 039-2302230
- Japan +81 (44) 811-1133
- Korea +822 552 3198
- Singapore +65-3985608
- Spain +34 93 415 6285
- Taiwan +886-2-2659-8200

## **CHAPTER 1**

### **Getting Started With Your CRT Desktop Monitor**

The 3M Touch Systems product line of touch monitors offers the CRT Desktop monitor for a broad range of applications including point-of-sale, hospitality, and retail. MicroTouch CRT monitors are available in 15" and 17" sizes in beige and 15" in black, these touch-enabled monitors are UL, FCC, and CE compliant.

This chapter describes how to set up and integrate your 3M Touch Systems CRT Desktop monitor into a touch application. You will need to complete the following tasks:

- Unpack the components
- Connect the video, touch screen, and power cables
- Power on the monitor and test your setup
- Install the touch screen software
- Calibrate the touch screen

#### **Capacitive and Resistive Options**

The monitors are available with 3M Touch System's ClearTek® capacitive touch screen. Capacitive is the touch screen technology of choice for public access applications requiring high levels of durability and reliable performance 24 hours a day, 7 days a week.

For those applications that require flexibility of input, including gloved-hand use, we offer a 5-wire resistive touch screen. This technology has been tested in a laboratory environment to withstand

35 million mechanical touches without noticeable degradation to the surface.<sup>1</sup>

## System Requirements

The CRT desktop touch monitors require a personal computer (PC). These touch monitors will not work with Macintosh computers.

The requirements for your PC are as follows:

- Depending on the type of monitor you purchased, you must have either an RS-232 serial communication (COM) port or a USB port to connect the touch screen to your PC.
- Your PC must have a video card and video driver already installed for the monitor. If you need to install a video card or a video driver, refer to your computer documentation for instructions.
- Your PC must have a unique interrupt request (IRQ) available to the touch screen COM port. The touch screen cannot share an IRQ with another device.
- If the only serial port available on your PC has 25 pins, you will need a 9-pin to 25-pin adapter.

When choosing your workspace, select a sturdy, level surface. Also, make sure you can easily access the back of the touch monitor and the computer. Easy access helps ensure a smooth setup of the touch monitor.

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**Note:** Before setting up your CRT touch monitor, refer to the Important Safety Information section at the beginning of this document.

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<sup>1</sup> Mechanical touches tested in a single x/y location using a finger-like stylus of 45 durometer, "A" shore hardness, 0.5 diameter with a load of 0.46 pounds,  $\pm 0.1$  pound of force.

## Unpacking Your Touch Monitor

Carefully unpack the carton and inspect the contents. Your CRT monitor includes an AC power cable, a tilt/swivel stand, a Monitor Installation Disk, a Product Support brochure, and a 3M Touch Solutions CD with touch screen software, documentation and utilities.

## Installing the Video Card and Video Driver

Before you can connect your touch monitor, make sure your computer has a video card and driver already installed for the monitor. The video driver is supplied by the video card manufacturer and may be found on the disks that came with your computer. If you need information on installing a video card or video driver, refer to your computer documentation for instructions.

## Supported Video Display Modes and Refresh Rates

Your video card should support one of the display modes specified in Table 1. If you select an unsupported video mode, the monitor may stop working or display unsatisfactory picture quality.

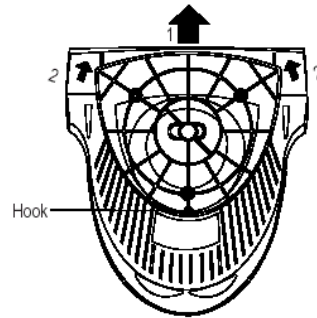
**Table 1. Applicable Display Mode and Refresh Rates for 15", 17", and 19"**

Display Mode	Refresh Rate (Hz)
IBM (640 x 480)	60
IBM (720 x 400)	70
VESA (640 x 480)	85
VESA (800 x 600)	60 (15" and 17" only)
	75
	85
VESA (1024 x 768)	60 (15" and 17" only)
	85
VESA (1280 x 1024)	60

## CRT Monitor Setup

No tools are required to set up the CRT Desktop monitor. Simply follow the instructions outlined below.

### Installing the Tilt/Swivel Stand

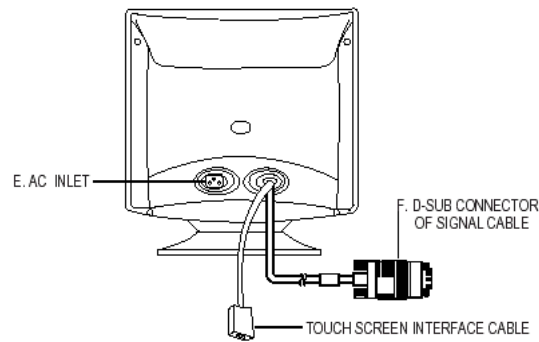


1. Align the stand with the slots in the bottom of the monitor and insert the Tilt/Swivel Stand into the slots.
2. Push the Tilt/Swivel Stand firmly toward the front of the monitor until the latch clicks into the locked position.

### Connecting the Touch Monitor

1. Turn off your computer.
2. Connect the video cable to the video card in your computer.
3. Connect the RS-232 (or USB) serial touch screen cable to the appropriate port on the back of your computer.
4. Connect the power cable to the monitor. Connect the other end to the appropriate AC outlet.



**Figure 1. Connecting the CRT Cables to your Computer**

Be sure all cable connections are secure -- tighten all cable screws. Shaking and vibration may dislodge cables that are improperly connected.

Route all wiring and cables away from heat sources and sharp metal edges to avoid damage. Also, keep the touch screen cable away from sources of electromagnetic and radio frequency interference.

**WARNING**

**To avoid the risk of electric shock which could result in serious injury or death:**

- Do not use a power cord that is frayed or otherwise damaged.

**Access to the Video Controls**

The controls for adjusting the video display are located on the front of the CRT desktop monitor. These buttons let you display the on-screen menu and adjust the phase, image position, contrast, and brightness. Make sure you have unobstructed access to the controls once the monitor is installed.

## Configuring the Display Settings

After you connect your CRT desktop touch monitor and turn on your computer, the Add New Hardware Wizard should appear because this monitor is a plug and play device.

1. Choose the "Display a list of drivers..." option.
2. Then click on the "Have Disk" option.
3. Insert the Monitor Installation Disk (included with this monitor) and select the appropriate monitor from the list.
4. Click "Next" and the proper preset timing files will be installed for your monitor.

You may need to configure one or more of these display settings. The ideal settings for the 15" and 17" monitors are as follows:

- Display mode (also called desktop area or video resolution) 1024 x 768
- Refresh rate (also called vertical scan rate or vertical sync) 85 Hz
- Color depth (also called color palette or number of colors) at least 16-bit (high color)

**Table 2. Operating Ranges**

Display Size	Horizontal	Vertical
15 inch	30 to 70 kHz	50 to 100 Hz
17 inch	30 to 70 kHz	50 to 150 Hz

## Using the Standard Controls for the Video Card

In addition to the standard controls on the monitor, each video card has several controls that let you adjust the display settings. The software and driver for each video card is unique. In most cases, you adjust these settings by using a program or utility provided by the manufacturer of the video card.

For more information on adjusting the desktop area (resolution), color depth, or refresh rate, refer to your video card documentation.

## Testing the CRT Touch Monitor

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**Note:** The CRT desktop power status light is located on front of the bezel.

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After connection, turn on the power switch located at the bottom of the front bezel. Before you test your touch monitor, make sure all cables are connected properly. Be sure to tighten all cable screws.

To test that the monitor is working properly:

1. Turn on your computer.
2. Make sure the video image is displayed. If it is not, turn on your monitor.
3. Make sure the video image is centered within the screen area. Use the monitor controls to adjust the image, if necessary.

You can adjust the horizontal and vertical position, contrast, and brightness to better suit your video card and your personal preference. Refer to Chapter 2 for more information on using the on-screen menu to adjust the video display.

## Installing TouchWare Software

TouchWare software includes the touch screen driver and control panel that enables your touch screen to work with your computer. When you install the CD included with your monitor, TouchWare will automatically load the correct driver for your system. 3M Touch Systems currently supports touch screen drivers for the following PC operating systems:

- Windows XP
- Windows 2000
- Windows NT 4.0
- Windows 9x
- Windows Me

These drivers and relevant technical documentation can be found on the latest 3M Touch Solutions CD (19-640) and are also available for download from our website at [www.3Mtouch.com](http://www.3Mtouch.com). After the software is installed, restart your computer to load and activate the touch screen driver. To complete the setup of your touch monitor, make sure you calibrate the touch screen.

## Calibrating the Touch Screen

After you connect your touch monitor and install TouchWare, you must calibrate the touch screen. *Calibration* serves two purposes:

- Sets the active area of the touch screen
- Aligns the touch screen's active area to the underlying video

To calibrate the touch screen, open the touch screen control panel and select Calibrate. Follow the directions displayed on the screen. For more information on calibration, refer to the online help or the *TouchWare for Windows User Guide* (P/N 19-224).

## CHAPTER 2

### Video Display Options

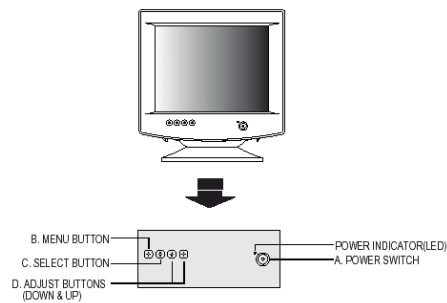
This chapter provides guidelines for adjusting the video display and using the monitor controls to adjust the image to your liking.

Before you make any adjustments:

- Be sure to adjust the controls in your normal lighting conditions.
- Display a test image or pattern whenever you adjust the video.

### Adjusting the 15" and 17" CRT Desktop Video Display

**Figure 2. 15" and 17" CRT Video Display Controls**



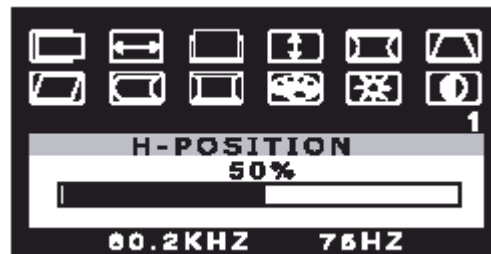
Your CRT desktop monitor has a power switch and four controls to adjust the video display.

- Power – Turns the power ON or OFF. There will be a few seconds delay before the display appears. The LED (next to the power switch) lights when the power is turned ON. Turn the power off by pressing the power switch again.








- MENU – Shows or hides the menu.
- SELECT -- Highlights the current menu option or saves the current setting. Press ▲ or ▼ to change the value.
- ▼/Down -- Enables you to scroll backwards through items on the menu -- decrease the value of selected option or move to the previous menu item.
- ▲/Up -- Enables you to scroll forward through items on the menu -- increase the value of selected option or move to the next menu item.

If you do not press the Menu, Select, or ▲/up or ▼/down adjust buttons for a user-defined time, the monitor adjustment program times out and hides the menu options. You can specify this time out duration through the OSD controls. You can press the Menu button at any time to display the options again.

### 15" and 17" OSD Menu 1



Icon	Description
	H POSITION (Horizontal Position) Moves images horizontally on screen left (▲) or right (▼).
	H SIZE (Horizontal Size) Increases (▲) or decreases (▼) size of image horizontally.
	V POSITION (Vertical position) Moves images vertically on screen up (▲) or down (▼).
	V SIZE (Vertical Size) Increases (▲) or decreases (▼) size of image vertically.
	PINCUSHION Adjusts the side pincushion or barrelling.




Icon	Description
	<b>TRAPEZOID</b> Adjusts the display sides to be parallel.
	<b>PARALLELOGRAM</b> Adjusts the tilt of the display sides.
	<b>PIN BALANCE</b> Adjusts the curvature of the left and right sides of the screen image.
	<b>CORNER PIN</b> User can select Top or Bottom corner correction by pressing the Select button. Top corrects the top corner image shape to a rectangle. Bottom corrects the bottom corner to a rectangle.
	<b>COLOR TEMPERATURE</b> Adjusts color temperature to 9300K, 6500K (factory default is 9300K). Or, for a custom color mode, select "USER" and push the select button to activate the RGB submenu. This adjusts the intensity of the RGB video output. Using the select button activate the R-Gain (Red Gain), G-Gain (Green Gain) or B-Gain (Blue Gain) and change color strength for a customized color mode.
	<b>BRIGHTNESS</b> Increases (▲) or decreases (▼) the intensity (illumination) of the image.
	<b>CONTRAST</b> Increases (▲) or decreases (▼) the strength (lightness or dimness) of the image.

## 15" and 17" OSD Menu 2



Icon	Description
	<b>RECALL</b> Resets the control functions back to the original factory preset values. In order for the Recall function to work, the timing must fall under one of the factory preset timing modes.
	<b>ROTATION</b> Adjusts the tilt of image.
	<b>LANGUAGE</b> Selects a language among English, Deutsch, Francais, Espanol, and Italiano.
	<b>DEGAUSS</b> Manually demagnetizes the CRT. This can be used if the display becomes discolored. Allow a minimum of 20 minutes to elapse between each degauss. The monitor also will automatically degauss when power is applied.
	<b>OSD Position</b> User can select hor or ver by pressing the Select button. H-position moves the OSD position left or right. V-position moves the OSD position up or down.
	<b>OSD ON TIME</b> Adjusts on screen OSD running time.
	<b>Video Level</b> Selects the video level of the video graphic card. If the intensity of the image is high, select 1.0V, if low, select 0.7V.
	<b>H-MOIRE</b> Reduces the optical effect of horizontal wavy lines on the



	display. These effects are more noticeable on large grey areas or black and white checkerboard patterns.
	V-MOIRE Reduces the optical effect of vertical wavy lines on the display. These effects are more noticeable on large grey areas or black and white checkerboard patterns.
	INFORMATION Displays current mode, horizontal frequency, vertical frequency, factory preset mode, and user preset mode.
	EXIT Exits the OSD menu.

## **CHAPTER 3**

### **Maintenance and Troubleshooting**

If you have a problem setting up or using your monitor, you may be able to solve it yourself. Before calling 3M Touch Systems, try the suggested actions that are appropriate to the problems you are experiencing with the monitor. You may also want to consult your video card user's manual for additional troubleshooting advice.

#### **Maintaining Your Touch Monitor**

To maintain your display and keep your monitor operating at peak performance:

- Keep your monitor and screen clean.
- Adjust the monitor video controls. Refer to Chapter 2 for more information.
- Do not install the display in a place where ventilation may be hindered. Always maintain adequate ventilation to protect the display from overheating and to ensure reliable and continued operation.

#### **Touch Screen Care and Cleaning**

The touch screen requires very little maintenance. 3M Touch Systems recommends that you periodically clean the glass touch screen surface.

Typically, isopropyl alcohol and water solution ratio of 50:50 is the best cleaning agent for your touch screen. You can also use straight isopropyl alcohol. In addition, 3M Touch Screen Cleaner 675 has been tested and approved for this use.

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- Always handle the touch screen with care. Do not pull on or stress cables.

## Monitor Installation Problems

Problem	Possible Causes and Solutions
No image displayed (blank screen)	<p><b>Is the monitor receiving power?</b></p> <ul style="list-style-type: none"> <li>• Check that the computer's power cable is connected properly and securely in a grounded electrical outlet.</li> <li>• Check that the monitor power cord is connected properly and securely to an electrical outlet. Check that the LED is lit on the monitor.</li> <li>• Try using another power cable.</li> <li>• Try using another electrical outlet.</li> </ul> <p><b>Is the monitor receiving a valid video signal from the PC?</b></p> <ul style="list-style-type: none"> <li>• Check that the computer is powered on.</li> <li>• Check that the video cable is connected properly and securely to the computer.</li> <li>• Check that no pins are bent in the video cable connector.</li> <li>• Check that the video card is firmly seated in the card slot in your computer.</li> <li>• Check that the video input from the video card falls within the operating range of the display. Refer to Table 2 for details.</li> </ul>

Problem	Possible Causes and Solutions
	<p><b>Is the monitor in Power Management mode?</b> Touch the screen, press any key on the keyboard, or move the mouse to restore operation.</p> <p><b>Are the brightness and contrast settings too low?</b> Use the monitor controls to adjust these values.</p>

## Troubleshooting the Touch Screen

If you are experiencing problems with the touch screen, check the following list of common installation errors.

**Table 3. Common Touch Screen Installation Issues**

Common Installation Issues	Possible Solutions
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Touch screen is not accurate	Calibrate the touch screen for the current video resolution and operating system.
Cursor does not follow finger movement or does not reach the edges of the screen	Calibrate the touch screen for the current video resolution and operating system.
Cursor is not located directly underneath your finger	<ul style="list-style-type: none"> <li>Open the touch screen control panel and make sure all cursor offsets (vertical, edge/horizontal) are turned off.</li> <li>Calibrate the touch screen for the current video resolution and operating system.</li> </ul>

Common Installation Issues	Possible Solutions
Cursor is extremely jittery or erratic	Stabilize the cursor by adjusting the operating frequency of the touch screen controller using the touch screen control panel.
Cursor lags finger	Lower the baud rate of the touch screen controller and the touch screen driver.

## Power Management

The CRT monitor conforms to the Video Electronics Standards Association (VESA) Display Power Management Signaling (DPMS) standard. To benefit from power management, the monitor must be used in conjunction with a computer and video card that implements the VESA DPMS standard.

The PC automatically invokes the power management feature if you do not use the touch screen, mouse, or keyboard for a user-defined period of time. To restore the video image, simply touch the screen, press a key, or move the mouse.

## CRT Regulatory Agency Approvals

Your product complies with the following regulatory standards:

- FCC-B
- CE
- UL/cUL

This equipment has been tested and found to comply within limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television

equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Move the equipment away from the receiver.
- Consult the dealer or an experienced radio/television technician for additional suggestions.

You are cautioned that any change or modification to the equipment not expressly approved by the party responsible for compliance could void your authority to operate such equipment.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

This device complies with Part 15 of the FCC rules: Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. 3M Touch Systems is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.